

NOTES ON A FEW FOSSIL PLANTS FROM THE FORT UNION
GROUP OF MONTANA, WITH A DESCRIPTION OF ONE NEW
SPECIES.

BY
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(With Plates I-II.)

The material which is the basis for the following notes was obtained by exchange from the University of Minnesota through Prof. C. W. Hall, the professor of geology in that institution. It consists of a single slab which bears no less than nine beautifully preserved leaves upon its surfaces. It was collected by Prof. A. D. Meeds, also of the University of Minnesota, during the summer of 1884, and is labeled "Southern Montana;" but, from the nature of the matrix as well as from the species of plants preserved upon it, it is more than probable that it came from the Yellowstone River, not far from the town of Glendive, Mont.

The first material from this part of the country was obtained by Dr. F. V. Hayden, while attached to an expedition made by Lieut. G. K. Warren, of the U. S. Army, in the summer of 1856.* This expedition proceeded from St. Louis to the mouth of the Yellowstone, at which point they arrived July 10, 1856. They intended navigating the Missouri River from this point to Fort Pierre in a small boat; but, as this could not be procured for some weeks, they spent the intervening time (until September 1) in exploring the Yellowstone as far up as the mouth of the Powder River.

Plants were also probably obtained during the years 1859 and 1860 by Dr. Hayden, who accompanied the exploring expedition under Capt. (later General) W. F. Reynolds to the Yellowstone and Missouri rivers.† The plants obtained at these times were described by Dr. J. S. Newberry in 1867.‡ This material had come, according to Dr. Newberry, from various points on the Missouri River, at Fort Clarke, Red Spring, Fort Berthold, and from 100 miles below old Fort Union, at

*Preliminary report of explorations in Nebraska and Dakota in the years 1855, 1856, and 1857, by Lieut. G. K. Warren, topographical engineer U. S. Army. Reprint, Washington, 1875.

†Exploration of Yellowstone and Missouri rivers under direction of Capt. W. F. Reynolds, 1859-'60. Washington, 1869.

‡Later extinct floras of North America. *Annals of the N. Y. Lyc. of Nat. Hist.*, vol. ix, 1868, pp. 27-76.

the mouth of the Yellowstone, and on the Yellowstone, at O'Fallon's Creek, 100 miles above where the Yellowstone joins the Missouri, and in the valley of the Yellowstone between this point and its mouth.

Much additional material from the same general region was obtained by Dr. C. A. White and Prof. Lester F. Ward, of the present Geological Survey, during the years 1881-1883. Prof. Ward's material came from the Yellowstone in the vicinity of Glendive, Mont., and the results of a preliminary examination of it are published in the Sixth Annual Report by the Director for the year 1884-'85 (pp. 542 *et seq.*) and also as a special bulletin (Types of the Laramie Flora, Bull. U. S. Geological Survey No. 37). Prof. Ward's material, it will be observed, is from practically, the same region as much of that obtained by Dr. Hayden, and, as shown both by the matrix and by the species represented, some of the material must have come from practically the same spot.

DESCRIPTION OF THE SPECIES.

Thuja interrupta Newby.

Later Extinct Floras, p. 42; Illustrations of Cret. and Tert. Plants, Pl. XI, Figs. 5, 5a.

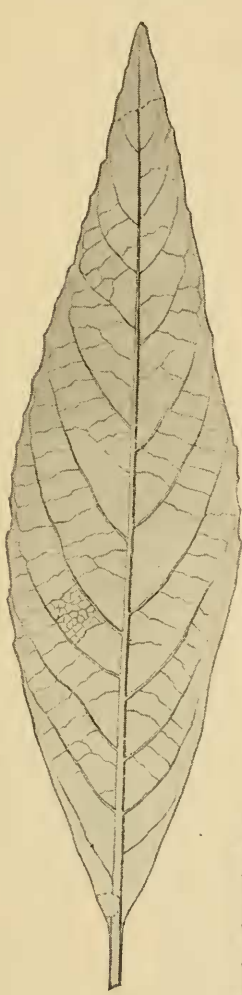
This beautiful species has not before been obtained, so far as I know, since the original specimens were collected by Dr. Hayden, near Fort Union. The slab obtained by Prof. Meeds bears a single small, but highly characteristic branch of this conifer.

Populus Meedsii, sp. nov.

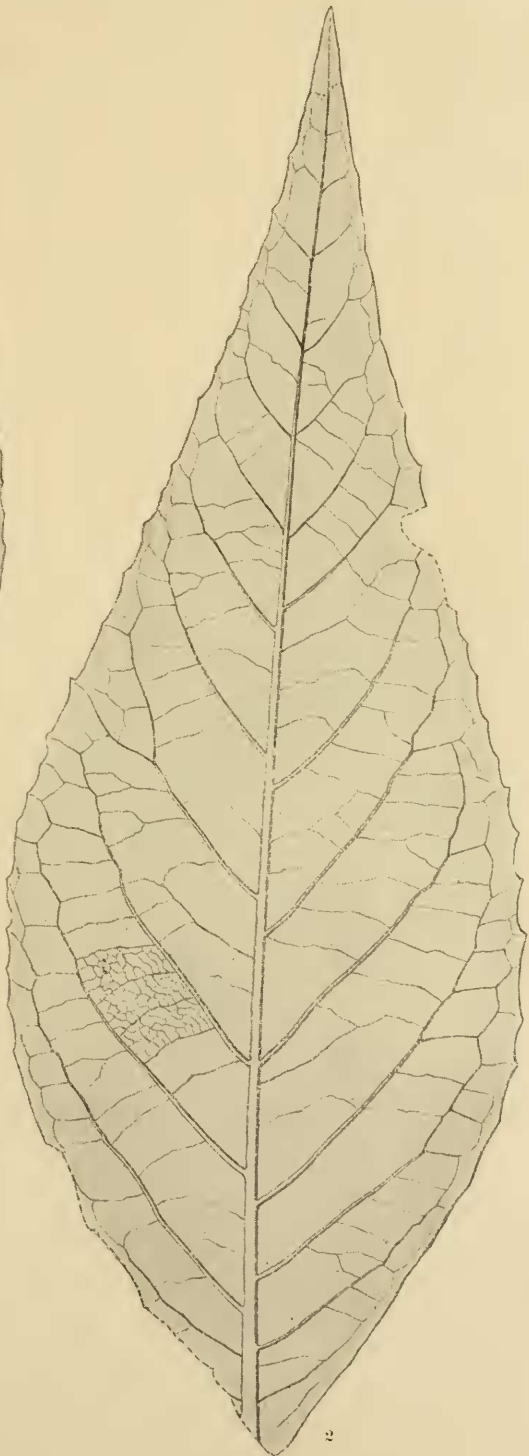
Pl. I, Figs. 1, 2.

Leaves short-petioled, 12 to 20^{cm} long, 3 to 7^{cm} broad, long-lanceolate, usually being broadest in the middle, from which point they taper gradually downward into a wedge-shaped base and upward into a similarly shaped, rather acute apex; lower third of margin smooth, remainder provided with very short outwardly pointing teeth separated by shallow sinuses; midrib strong, straight; secondaries, 12 to 14 pairs, alternate or subopposite, emerging at an angle of 45° or 50°, running straight toward the margin, along which they arch, forming a nearly regular series of quadrangular meshes, and from which slender branches enter the weak teeth; tertiaries strong, forming lattice-like bars nearly at right angles to the midrib or in some cases more nearly at right angles to the secondaries; ultimate nervation fine, quadrangular.

This beautiful species, which I take pleasure in naming in honor of Prof. Meeds, the collector, seems to find its nearest living analogue in *Populus angustifolia* James (*P. balsamifera* var. *angustifolia* Watson), a species still living along streams from New Mexico and Colorado to California and Washington. The living species differs merely in having the leaves more nearly ovate-lanceolate and in being crenate-serrate with numerous fine teeth. The nervation is quite similar in both, being, however, less regular and with the secondaries at a more acute angle



1



2

Populus meedii, new species.

